PCW__09__22 Coordinate transformations v8

Question 1

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; 5 \cdot \left(f\left[\frac{x}{4} - 7\right] + 2 \right)$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \rightarrow (4\,(a + 7)\ ,\ 5\,(b + 2))$$

Question 2

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; \frac{f[2x - 7] + 4}{5}$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \rightarrow \left(\frac{a + 7}{2}\ ,\ \frac{b + 4}{5} \right)$$

Question 3

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; 7 \cdot f[8x + 3] + 6$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \rightarrow \left(\frac{a - 3}{8}\ ,\ 7b + 6 \right)$$

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Question 4

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; 8 \cdot \left(f\left[\frac{x-9}{3} \right] - 6 \right)$$

For point (a,b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a,b) \rightarrow (3a + 9 \;,\; 8\,(b-6))$$

Question 5

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; \frac{f[7\,(x-3)] - 6}{2}$$

For point (a,b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a,b) \rightarrow \left(\frac{a}{7} + 3 \;,\; \frac{b-6}{2} \right)$$

Question 6

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; \frac{f\left[\frac{x}{3} + 7 \right]}{8} + 6$$

For point (a,b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a,b) \rightarrow \left(3\,(a-7) \;,\; \frac{b}{8} + 6 \right)$$